Claims

What is Claimed:

1. An isolated polynucleotide comprising a sequence selected from the group consisting of:

(a) sequences provided in SEQ ID NO:1-48, 114-121, 125-138, and 141-157;

(b) complements of the sequences provided in SEQ ID NO: 1-48, 114-121, 125-138, and 141-157;

(c) sequences consisting of at least 20 contiguous residues of a sequence provided in SEQ ID NO:1-48, 114-121, 125-138 and 141-157;

(d) sequences that hybridize to a sequence provided in SEQ ID NO:1-48, 114-121, 125-138 and 141-157, under highly stringent conditions;

(e) sequences having at least 95% identity to a sequence of SEQ ID NO:1-48, 114-121, 125-138, and 141-157;

(f) sequences having at least 99% identity to a sequence of SEQ ID NO: 1-48, 114-121, 125-138, and 141-157; and

(g) degenerate variants of a sequence provided in SEQ ID NO: 1-48, 114-121, 125-138, and 141-157.

2. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of:

(a) sequences encoded by a polynucleotide of claim 1;

(b) sequences having at least 95% identity to a sequence encoded by a polynucleotide of claim 1; and

(c) sequences having at least 99% identity to a sequence encoded by a polynucleotide of claim 1.

3. An isolated polypeptide comprising at least an immunogenic fragment of a polypeptide sequence selected from the group consisting of:

(a) a polypeptide sequence set forth in SEQ ID NO: 122-124 and 139-

140,

(b) a polypeptide sequence having at least 95% identity with a sequence set forth in SEQ ID NO: 122-124 and 139-140, and

(c) a polypeptide sequence having at least 99% identity with a sequence set forth in SEQ ID NO: 122-124 and 139-140.

4. An expression vector comprising a polynucleotide of claim 1 operably linked to an expression control sequence.

5. A host cell transformed or transfected with an expression vector according to claim 4.

6. An isolated antibody, or antigen-binding fragment thereof, that specifically binds to a polypeptide of claim 2 or claim 3.

7. A method for detecting the presence of Chlamydia in a patient, comprising the steps of:

(a) obtaining a biological sample from the patient;

(b) contacting the biological sample with a binding agent that binds to a polypeptide of claim 2 or claim 3;

(c) detecting in the sample an amount of polypeptide that binds to the binding agent; and

(d) comparing the amount of polypeptide to a predetermined cut-off value and therefrom determining the presence of Chlamydia in the patient.

8. A fusion protein comprising at least one polypeptide according to claim 2 or claim 3.

9. An oligonucleotide that hybridizes to a sequence recited in any one of SEQ ID NO: 1-48, 114-121, 125-138, and 141-157 under highly stringent conditions.

10. A method for stimulating and/or expanding T cells specific for a

Chlamydia protein, comprising contacting T cells with at least one component selected from the group consisting of:

(a) a polypeptide according to claim 2 or claim 3;

(b) a polynucleotide according to claim 1; and

(c) an antigen-presenting cell that expresses a polynucleotide according to claim 1,

under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells.

11. An isolated T cell population, comprising T cells prepared according to the method of claim 10.

12. A composition comprising a first component selected from the group consisting of physiologically acceptable carriers and immunostimulants, and a second component selected from the group consisting of:

(a) a polypeptide according to claim 2 or claim 3;

(b) a polynucleotide according to claim 1;

(c) an antibody according to claim 6;

(d) a fusion protein according to claim 8;

(e) a T cell population according to claim 11; and

(f) an antigen presenting cell that expresses a polypeptide according to claim 2 or claim 3.

13. A method for stimulating an immune response in a patient, comprising administering to the patient a composition selected from the group consisting of:

(a) a composition of claim 12;

(b) a polynucleotide sequence of any one of SEQ ID NO:80-94; and

(c) a polypeptide sequence of any one of SEQ ID NO:95-109.

14. A method for the treatment of Chlamydia infection in a patient,

comprising administering to the patient a composition selected from the group consisting of:

(a) a composition of claim 12;

(b) a polynucleotide sequence of any one of SEQ ID NO:80-94; and

(d) a polypeptide sequence of any one of SEQ ID NO:95-109.

15. A method for determining the presence of Chlamydia in a patient, comprising the steps of:

(a) obtaining a biological sample from the patient;

(b) contacting the biological sample with an oligonucleotide according to claim 9;

(c) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide; and

(d) comparing the amount of polynucleotide that hybridizes to the oligonucleotide to a predetermined cut-off value, and therefore determining the presence of the cancer in the patient.

16. A diagnostic kit comprising at least one oligonucleotide according to claim 9.

17. A diagnostic kit comprising at least one antibody according to claim

18. A method for the treatment of Chlamydia in a patient, comprising the steps 6 and a detection reagent, wherein the detection reagent comprises a reporter group.of:

(a) incubating CD4+ and/or CD8+ T cells isolated from a patient with at least one component selected from the group consisting of:

(i) a polypeptide according to any one of claims 2 or 3;

(ii) a polypeptide sequence of any one of SEQ ID NO: 95-109;

(iii) a polynucleotide according to claim 1;

(iv) a polynucleotide sequence of any one of SEQ ID NO:80-94;

(v) an antigen presenting cell that expresses a polypeptide sequence set forth in any one of claims 2 or 3;

(vi) an antigen presenting cell that expresses a polypeptide sequence of any one of SEQ ID NO:95-109, such that the T cells proliferate; and

(b) administering to the patient an effective amount of the proliferated T cells.